



Dr. Mansour Alhoshan

Assistant Professor

King Saud University
College of Engineering
Chemical Engineering Department
PO Box 800
Riyadh 11421, KSA
mhoshan@ksu.edu.sa

Experiences:

Teacher Assistant, King Saud University, 1996-1998
Assistant Professor, King Saud University, 2007
Member of King Abdullah Institute for Nanotechnology (KAIN), 2007
Head of Central Facilities and Laboratories Unit KAIN, 2007-2011
Vice Dean for Research King Abdullah Institute for Nanotechnology, 2011-2013
Member of Sustainable Energy Technologies Center at KSU, 2011

Education:

B.S., Chemical Engineering, King Saud University, 1996

Master of Science, Material Science, University of Minnesota, 2001

Thesis title:

Electrochemical insertion/release of hydrogen in single wall carbon nanotubes

Ph.D., Material Science, University of Minnesota, 2007

Thesis title:

Novel nanoarray structures formed by template based approach: characterization and electrochemistry

Research Areas:

Development of novel nanocomposite membranes for water treatment application

Nanostructured electrodes and electrocatalysis for fuel cell application

Hydrogen production by water splitting using photoelectrochemical cell

Teaching Courses:

- 1- Introduction to Nanomaterials (undergraduate level)
- 2- Unit Operation Lab (undergraduate level)
- 3-Introduction to Material Science and Engineering (undergraduate level)
- 4- Selected Topics in Nanomaterials (graduate level)
- 5- Selected Topics in Material Science and Engineering (graduate level)

List of projects:

- 1-Nanopatterning for Fuel cell Electrodes / Synthesis of titanium oxide nanotubes With collaboration with University of Minnesota and MIT (USA) 2007-2010
- 2- Nanostructured PEM Fuel Cell with collaboration with CEA (France) 2008-2011
- 3- Covalent Modification of Carbon Nanotubes with functional groups for Biosensors Applications 2010-2012
- 4- Synthesis of core-shell mesoporous architectures based on anionic surfactants for drug control release and stimulated drug delivery 2010-2012
- 5- Preparation of functionally modified polyacrylonitrile nanofiber membrane and its application for the removal of hazardous materials from aqueous system 2010-2012

Awards and Recognitions:

Prize of the Chairman of Chemical Engineering Department for best research performance in the department, 2011

Taif University Rector Prize during Okaz Bazar Festival (Scientific Educational Program), 2011.

Patent

Organosilicon nanoparticle composite comprises organosilicon solid including homogenous distribution of hydrogen terminated luminescent silicon nanoparticles throughout the solid, Aldwayyan, Abdullah Saleh (Riyadh, SA), Alsalhi, Mohamad Saleh (Riyadh, SA), Aldukhai, Abdulrahman Mohammed (Gassim, SA), **Alhoshan, Mansour S. (Riyadh, SA)**, Khan, Muhammad Naziruddin (Lilong, IN), Al-chaar, Ghassan K. (Champaign, IL, US), Nayfeh, Munir H. (Urbana, IL, US), **Patent No., US2010234204-A1, 2010**

Selected Publications:

Synthesis and Optimization of PES-Fe₃O₄ Mixed Matrix Nanocomposite Membrane: Application Studies in Water Purification, Javed Alam, Lawrence Arockiasamy Dass, Mostafa Ghasemi, Mansour Alhoshan, Polymer Composites, DOI 10.1002/pc, 2013.

Synthesis and Electrochemical Properties of Pure Pt, Au, and Pt–Au Alloy Catalysts on Titanium Oxide Nanotubes (TONs), Mohamed A. Ghanem, Jai P. Singh, Abdullah M. Al-Mayouf, Maged N. Shaddad, Mansour Al-Hoshan, Abdulaziz Al-Suhybani, Electrocatalysi, DOI 10.1007/s12678-013-0128-3, 2013.

Fabrication of Polysulfone/ZnO Membrane: Influence of ZnO Nanoparticles on Membrane Characteristics, Mansour Alhoshan, Javed Alam, Lawrence Arockiasamy Dass, Nasser Al-homaidi, Adv Polym Technol, 32, 21369, 2013.

Chemical Deposition and Electrocatalytic Activity of Platinum Nanoparticles Supported on TiO₂ Nanotubes, M.N. Shaddad, A.M. Al-Mayouf, M.A. Ghanem, **M.S. AlHoshan**, J.P. Singh1, A.A Al-Suhybani, Int. J. Electrochem. Sci., 8, 2468 – 2478, 2013.

A study of the modification of glassy carbon and edge and basal plane highly oriented pyrolytic graphite electrodes modified with anthraquinone using diazonium coupling and solid phase synthesis and their use for oxygen reduction, Izzet Kocak, Mohamed A. Ghanem, Abdullah Al-Mayouf, **Mansour Alhoshan**, Philip N. Bartlett, Journal of Electroanalytical Chemistry, 706, 25–32, 2013.

Preparation and characterization of pH-responsive and thermoresponsive hybrid microgel particles with gold nanorods, Aslam Khan, **Mansour Alhoshan**, Journal of Polymer Science Part A: Polymer Chemistry, 51, 39–46, 2013.

Covalent modification of carbon nanotubes with anthraquinone by electrochemical grafting and solid phase synthesis, Mohamed A. Ghanem, Izzet Kocak, Abdullah Al-Mayouf, **Mansour AlHoshan**, Philip N. Bartlett, Electrochimica Acta, 68, 74-80, 2012.

Synthesis of double mesoporous core–shell silica spheres with tunable core porosity and their drug release and cancer cell apoptosis properties, Ahmed Mohamed El-Toni, Aslam Khan, Mohamed Abbas Ibrahim, Joselito Puzon Labis, Gamal badr, **Mansour Al-Hoshan**, Shu Yin, Tsugio Sato, Journal of Colloid and Interface Science, 378, 83–92, 2012.

Advances in membrane development based on electrically conducting polymers, Javed Alam, Lawrence Arockiasamy Dass, **Mansour Alhoshan**, Abdul Wahab Mohammad, *Advances in Polymer Technology*, 1-9, 2012

Heat treatment and electrochemical activation of titanium oxide nanotubes: The effect of hydrogen doping on electrochemical behavior, **M.S. AlHoshan**, A.A. BaQais, M.I. Al-Hazza, A.M. Al-Mayouf, *Electrochimica Acta*, 62, 390– 395, 2012.

Preparation of thermo-responsive hydrogel-coated magnetic nanoparticles, Aslam Khan, Ahmed El-Toni, **Mansour Alhoshan**, *Materials Letters*, 89, 12-15, 2012

Microwave-assisted synthesis of silver nanoparticles using poly-N-isopropylacrylamide/acrylic acid microgel particles, Aslam Khan, Ahmed Mohamed El-Toni, Salman Alrokayan, Mohamad Alsalhi, **Mansour Alhoshan**, Abdullah S. Aldwayyan, *Colloids and Surfaces A:Physicochemical and Engineering Aspects*, 377 (2011) 356–360

Growth of 1-D TiO₂ Nanowires on Ti and Ti Alloys by Oxidation, Huyong Lee, Suliman Dregia, Sheikh Akbar, and **Mansour Alhoshan**, *Journal of Nanomaterials*, Volume 2010 (2010), Article ID 503186, 7 pages.

Investigation of photocatalytic activity and UV-shielding properties for silica coated titania nanoparticles by solvothermal coating Ahmed Mohamed El-Toni, Shu Yin, Tsugio Sato, Talal Ghannam, **Mansour Al-Hoshan**, Mohamed Al-Salhi, *Journal of Alloys and Compounds*, Volume 508, Issue 1, 15 October 2010, Pages L1-L4

Synthesis by *in situ* chemical oxidative polymerization and characterization of polyaniline/iron oxide nanoparticle composite, Aslam Khan, Abdullah Aldwayyan, **Mansour Alhoshan**, Mohamad Alsalhi, *Polymer International*, 59,12, 1690-1694, 2010

Synthesis of double mesoporous core-shell silica nanospheres with radially oriented mesopores *via* one-templating step using anionic surfactant, Ahmed El-Toni, Mohamed Wasi, Mohamed Abbas, Mohamed Abid, **Mansour Alhoshan** and Mohamed Al-salhi, *Chem.Commun.*, 46, 6482-6484, 2010

Arrays of Ni Nanotubes formed by an Electroless deposition-template based approach: Preparation and characterization, **Alhoshan M.** and Smyrl W.H., *Int. J. Nanoparticles*, Vol. 2, pp. 72-78, 2009

Synthesis of Pt/TiO₂ Nanotube Catalysts for Cathodic Oxygen Reduction, Woo-Jin Lee, **Mansour Alhoshan**, Sara L. Yohe, Nathan L. Macy and William Smyrl, *Journal of The Electrochemical Society*, **155** (9) B915-B920, 2008

Titanium Dioxide Nanotube Arrays Fabricated by Anodizing Processes:Electrochemical Properties, Woo-Jin Lee, **Mansour Alhoshan** and William Smyrl, *Journal of The Electrochemical Society*, Volume 153, Issue 11, pp. B499-B505,2006

Reactivity of surfaces and imaging with functional NSOM, T.L. Knutson, F. Guillaume, W-J.Lee, **M. Alhoshan**, W.H. Smyrl, *Electrochimica Acta* 48, 3229-3237, (2003).

Conferences:

Enhancement of Titanium oxide nanotubes capacitance by electrochemical hydrogenation, , Abdullah AlMayouf, Amal Ba-Qais, Mansour Alhoshan, International Conference on New Advances in Materials Research for Solar Fuels Production, from 12th to 14th June 2013, Granada, Spain

Development of Polysulfone/nanorods-Fe₃O₄ Nanocomposite Membrane, J. Alam, **M. Alhoshan**, the 2nd Saudi International conference and workshop, King Abdul-Aziz City for Science and Technology, November 11-13, 2012, Riyadh, Saudi Arabia

Covalent Chemical and Electrochemical Modification of Carbon Nanotubes by Redox Probes for Biosensor Applications, M. Ghanem, I. Kocak, A. Al-Mayouf, **M. Alhoshan**, P. Bartlett, *Electrochem* 2011, 5th-6th September 2011, University of Bath, UK

Electrodeposition of Catalyst Nanowires on Microporous substrate for PEM Fuel cell, G. Sibiude, N. Guillet, F.Nores Pondal, G. Bidan, M. Alhoshan, 219th ECS Meeting, May 1-6, 2011, Montreal, QC, Canada.

Templated electrodeposited catalyst nanowires on microporous substrate as fuel cell electrodes, G. Sibiude, N. Guillet, G. Bidan, M. Alhoshan, *Fundamentals and Developments of Fuel Cells - Conference* 2011, January 19-21th, 2011, Grenoble – France.

High performance fuel cell, Maher Alodan, **Mansour Alhoshan**, Kaushik Parmar, Abdullah Alzaben *IEEE international energy conference towards sustainable energy, Energycon 2010* during December 18-22, 2010 at Manama, Bahrain.

Enhancement of Miniature fuel cell using TiO₂ nanotube array, Maher Alodan, **Mansour Alhoshan**, Kaushik Parmar, Abdullah Alzaben, 8th Global Conference on Sustainable Manufacturing in Abu Dhabi during November 22nd-24th, 2010

Li intercalation/deintercalation in V₂O₅ Nanowires Supported by Ni Microtubes arrays, **Mansour Alhoshan** and William Smyrl, *International Conference on Materials for Advanced Technologies, ICMAT 2009*, 28 June-3rd July 2009, Singapore.

Titanium Dioxide Nanotube Arrays Coated with Platinum: Preparation and Characterization, **Mansour Alhoshan** and William Smyrl, *Conference of Nanostructured Advanced Materials*, Amman, Jordan, National Science Foundation, Washington Dc, November 10-13, 2008.

Nanotube Arrays of TiO₂ formed by Anodic Process, Bill Smyrl and **Mansour Alhoshan** Meet. Abstr.-*Electrochem.Soc.* **602**, 901 (2006)

Symposiums, Workshops and Training Courses

Launch Event for the renewable resource atlas of the kingdom of Saudi Arabia , King Abdullah City for Atomic and renewable Energy (K.A. CARE),December 18, 2013, Riyadh.

Symposium of Materials and energy for new energy technologies, Royal Society of Chemistry / KSU, 2013, Riyadh.

Saudi Water and Power Forum, King Abdullah University of Science and Technology, 2013, Jeddah

Workshop on advances in renewable energy research: A global Perspective, SET Center/KSU, 2013, Riyadh.

Workshop on Solar Desalination, SET Center and Saudi Chemical Engineering Society/KSU, 2013, Riyadh.

Short course on Electrochemical Impedance, Zahner, 2012, Bad Staffelstein, Germany.

Workshop on Nanomaterials for energy storage, King Abdullah Institute for Nanotechnology and Thales Group (France)/KSU, 2011, Riyadh (member of organizing comity).

Short course on Polymer electrolyte fuel cells, electrochemical society 2011, Boston, USA.

The International Conference For Nanotechnology Industries, King Abdullah Institute for Nanotechnology, 2009, Riyadh (member of scientific comity).

Workshop on Chinese Experience in Nano industry, King Abdullah Institute for Nanotechnology/KSU, 2008, Riyadh.